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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,540	10/18/2006	Yasuhisa Hagiwara	284677US-90-PCT	2092
22850	7590	04/17/2009	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			KERN, KEVIN P	
			ART UNIT	PAPER NUMBER
			1793	
			NOTIFICATION DATE	DELIVERY MODE
			04/17/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/565,540	<b>Applicant(s)</b> HAGIWARA ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2008 and 27 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,9-12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,12,14,15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicants' election of Group I (claims 1, 3, 12, 14, 15, 17, and 18) in the reply filed on February 27, 2009 is acknowledged. Because applicants did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1, 3, 12, 14, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-317084 in view of either JP 62-292244 or JP 5-311271 (cited in IDS of 10/18/06), and further in view of Berry et al. (US 4,524,821).

JP 10-317084 discloses a continuous casting apparatus and method for casting a metal (aluminum) cast member comprising the steps of driving a casting wheel 10 which has a groove formed on an external peripheral surface thereof, such that an endless belt 12 is closed over the groove in a direction of casting (abstract; and Figures 1, 2, and 6). JP 10-317084 fails to specifically teach that the casting wheel and endless belt are differentiated in temperature therebetween by heating the endless belt to a temperature of ((melting point or liquidus-line temperature of the metal) x 0.35) or above, before the belt contacts the molten metal, in addition to heating the endless belt by a heating device (burner) that is not configured to heat the molten metal.

However, it would have been obvious and conventional in the continuous casting art to heat the endless belt at a higher temperature than the condition of ((melting point or liquidus point) x 0.35) or above, of the intended metal to be cast, since at higher temperatures the molten metal would still be kept in a liquidus state until it passes a predetermined distance on the casting wheel.

Furthermore, both JP 62-292244 and JP 5-311271 (cited in IDS of 10/18/06) individually disclose a continuous casting method having casting surfaces with different temperatures (see abstracts of both references) for the purpose of controlling blowholes and having no segregation of the impurities or their overconcentration at the end part

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thereof by solidifying molten metal as differing solidifying progress at least one of the surface in the mold (see abstract of JP '244; and abstract of JP '271).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to control the endless belt to a temperature of ((melting point or liquidus-line temperature of the metal) x 0.35) or above, since this would involve routine experimentation to find optimum results. Furthermore, it would have been obvious to try to find a control temperature and/or range of temperatures for the endless belt, since the applicants are choosing from a finite number of identified predictable solutions with a reasonable expectation of success, in order to obtain optimum heating. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ.2d 1385 (S.Ct. 2007).

Neither JP 10-317084, JP 62-292244, nor JP 5-311271 discloses that the endless belt is heated by a heating device (burner) that is not configured to heat the molten metal.

However, Berry et al. disclose a continuous casting apparatus that includes an endless metal casting band preheating device, in which the preheating device is a burner 250 that is operable and dedicated to solely preheat an endless metal band 202 (belt) of a wheel-band continuous casting apparatus to form a continuously moving mold cavity (peripheral groove) in conjunction with a rotatable casting wheel 201 (abstract; column 1, lines 5-9; column 3, lines 12-31 and 53-68; column 4, lines 1-6 and 37-68; column 5, lines 1-16; column 6, lines 9-60; and Figures 2 and 3), in which the burner 250 is a gas-fired band preheater that is enclosed and directed toward a surface of the endless belt (band 202) that is not facing the molten metal (Figure 3) through which the

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endless belt (band 202) passes at temperatures above 100°C (examples ranging from 85 to 245°F – column 6, lines 49-60), such that this preheating device (burner) dedicated to solely heat the endless belt (and not molten metal) is advantageous for greatly improving the endless belt (casting band) life and for providing improved heating efficiency at minimal expense (abstract; column 1, lines 5-9; column 3, lines 12-31 and 53-68; and column 6, lines 35-41 and 49-60).

It would have been obvious to modify the combined teachings of JP 10-317084 in view of either JP 62-292244 or JP 5-311271, by using the preheating device (burner) that preheats the endless belt and is not the heat source for the molten metal, as disclosed by Berry et al., in order to greatly improve the endless belt (casting band) life and to provide improved heating efficiency at minimal expense (Berry et al.; abstract; column 1, lines 5-9; column 3, lines 12-31 and 53-68; and column 6, lines 35-41 and 49-60).

### ***Response to Arguments***

5. The examiner acknowledges the applicants' amendment and response to the restriction/election requirement received by the USPTO on October 21, 2008 and February 27, 2009, respectively. Non-elected claims 9-11 and 16 are withdrawn from consideration. Claims 1, 3, 12, 14, 15, 17, and 18 are currently under consideration in the application.

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6. Applicants' arguments with respect to the rejected claims (in particular to independent claims 1 and 12, as amended) have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns  
Primary Examiner  
Art Unit 1793

/Kevin P. Kerns/  
Primary Examiner, Art Unit 1793  
April 11, 2009